

Application No.: 10/690088

Case No.: 58136US004

REMARKS

Claims 1 to 13 are pending and rejected. Claims 1 and 4 are amended. Claim 14 is cancelled.

Support for the amendments to claim 1 can be found at least at page 2, lines 13 to 25; page 5 lines 13 to 30; page 7, lines 4 to 15; and claims 1 and 14 as originally filed.

CLAIM REJECTIONS*McCarthy in view of Tournut*

Claims 1-14 were rejected under 35 U.S.C. § 103(a) as purportedly being unpatentable over McCarthy et al. (US 5,955,556) [hereinafter McCarthy] in view of Tournut et al. (US 4,025,481) [hereinafter Tournut] for the reasons set forth in paragraphs 4-6 of office action dated 12-2-2004 as well as the discussion provided in the final office action dated July 7, 2005.

Oxenrider in view of Tournut

Claims 1-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Oxenrider et al. (US 5,453,477) in view of Tournut et al. (US 4,025,481) for the reasons set forth in paragraph 7-9 of office action dated 12-2-2004 as well as the discussion provided in the final office action dated July 7, 2005.

Regarding the two 103(a) rejections, the Patent Office averred that each of the two primary references including McCarthy and Oxenrider has disclosed surfactant-free copolymerization but is silent about adding fluorinated liquids and/or fluoropolymer particles in the polymerization process. The Patent Office states that McCarthy has disclosed the preparation of a stable aqueous self-dispersible fluorinated copolymer dispersion by surfactant-free aqueous emulsion polymerization of a combination of fluoroolefin(s) and non-fluoroolefin(s).

According to the Patent Office, Oxenrider has disclosed the preparation of stable aqueous fluorinated copolymer dispersions by surfactant-free aqueous suspension polymerization of a combination of fluoroolefin(s) and nonfluoroolefin(s). The Patent Office states, however, that Oxenrider does not rule out using an aqueous emulsion polymerization (citing column 1, line 50 to column 2, line 3).

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The Patent Office sustained the rejection over each McCarthy and Oxenrider in further view of Tournut. The Patent Office noted that Tournut has disclosed using an inactive halogenated saturated hydrocarbon such as difluorochloromethane or trifluorotrichloroethane to be useful as a stabilizing agent in the aqueous emulsion polymerization with the polymerizable fluorinated monomer in order to obtain a stabilized aqueous dispersion and a lower molecular weight (since such a halocompound can assertedly be generally useful as chain transfer agent).

The Patent Office, while admitting that Tournut characterizes a surfactant as a "necessary additive", averred that a stabilizing agent still works, as a stabilization agent no matter whether surfactant is present in the system. The difference, according to the Patent Office, may be in the degree of reactivity. The Patent Office then attempts to draw an analogy to a free radical initiator, stating that a free radical initiator would be a free radical initiator in various polymerization conditions or types as long as it is not poisoned by other component. In summary, the Patent Office states that Tournut has disclosed using such a stabilizing agent in the process of aqueous polymerization.

The Patent Office concluded by asserting that upon a close view of claim 1, the presence of "fluoropolymer particles" and/or "fluorinated liquid" is required to improve the copolymerization. Therefore, according to the Patent Office, either a fluoropolymer particle or a fluorinated liquid is required to be present. The Patent Office further asserts that the monomers used by McCarthy may include the claimed "liquid fluorinated monomers" such as perfluoro(propyl vinyl) ether or perfluoro(methyl vinyl) ether (citing column 3, line 60-61). Therefore, according to the Patent Office, the disclosure of McCarthy alone may anticipate the limitation of claim 1.

APPLICANTS' RESPONSE TO CLAIM REJECTIONS

In light of the amended claims and the remarks provided herein, the Applicants respectfully traverse both of the rejections under 35 USC §103.

Amended Claim 1 relates to a process comprising polymerizing a fluorinated olefin and a hydrocarbon olefin selected from ethylene, propylene and mixtures thereof, to give a copolymer. The polymerizing is a substantially emulsifier free aqueous emulsion polymerization in the presence of fluoropolymer particles and/or in the presence of fluorinated liquid having a boiling

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point of at least 50°C. The copolymer contains recurring units deriving from the hydrocarbon olefin in an amount of 10 to 70 mol% relative to the total amount of recurring units in the copolymer.

McCarthy in view of Tournut

The Applicants respectfully traverse the rejection of claims 1 to 13 in light of the claim amendments and the remarks provided herein. The references cited, both alone and in combination, fail to fairly teach, suggest or describe the process of amended claim 1, which incorporates a limitation on the boiling point of the fluorinated liquid as well as a limitation on the amount of recurring units deriving from the hydrocarbon olefin in the copolymer.

The Applicants respectfully maintain their position that Tournut fails to teach, suggest or disclose the use of fluorinated liquids in a substantially emulsifier free aqueous emulsion polymerization process. In fact Tournut, in column 2, lines 31 to 39, teaches the away from the present claims. The noted section in column 2 indicates that emulsifying agent is a necessary component of the polymerization reaction. Applicants also point out that all of the examples of Tournut utilize an ammonium perfluoroactanoate as an emulsifying agent. Finally, the Patent Office has not shown where Tournut teaches, suggests or describes a copolymerization of a fluorinated olefin and a hydrocarbon olefin selected from ethylene, propylene and mixtures thereof.

With respect to the limitation that the copolymer contains recurring units deriving from said hydrocarbon olefin in an amount of 10 to 70 mol% relative to the total amount of recurring units in said polymer, the Patent Office averred in Paper #8 (non-final office action dated December 2, 2004), that McCarthy teaches that various copolymers from TFE and propylene can be prepared in any desirable mole ratio (citing column 3, line 49 to column 4, line 14).

The Applicants respectfully traverse this Patent Office characterization of McCarthy. While McCarthy does discuss copolymerizing hydrocarbon olefins and fluorinated olefins, McCarthy suggests that the "amount of olefin(s) used will depend on the size of the reaction vessel and the amount of fluoropolymer which can be dispersed in water without polymer flocculation. The ratio of *fluoroolefin to nonfluoroolefin* is not critical."

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Thus, what McCarthy teaches is that the ratio of fluorinated to non-fluorinated olefin starting material is not critical. McCarthy does not teach or fairly suggest that the non-fluorinated olefin can be incorporated into the fluoropolymer in any ratio desired. The distinction is important, for instance, in Example 13, where McCarthy demonstrates that the process described therein is capable of only 3% incorporation of vinyl propionate into the terpolymer produced.

In contrast, amended claim 1 requires that the "copolymer contains recurring units deriving from said hydrocarbon olefin in an amount of 10 to 70 mol% relative to the total amount of recurring units in said copolymer."

The Patent Office also stated in ¶ 10 of Paper # 10 (final Office Action dated July 7, 2005), that the monomers used by McCarthy may include the claimed liquid fluorinated monomers such as perfluoro(propyl vinyl) ether or perfluoro(methyl vinyl) ether.

The Applicants respectfully submit that amended claim 1, wherein the fluorinated liquid has a boiling point of at least 50°C, is not taught or fairly suggested by the monomers described by the Patent Office.

Withdrawal of the rejection of claim 1 is respectfully requested. Additionally, the remaining claims 2-13 all depend, either directly or indirectly, from claim 1. Thus, each of these claims is patentable at least on the basis of this dependency from a patentable base claim. Furthermore, amended claim 4 requires that the fluorinated liquid is an inert fluorinated hydrocarbon wherein all of the hydrogen atoms have been replaced with fluorine atoms. Even if the Patent Office were to maintain the inappropriate combination of Tournut and McCarthy, the Patent Office has not shown that the asserted liquid fluorinated hydrocarbons described in Tournut are inert fluorinated hydrocarbons wherein all of the hydrogen atoms have been replaced with fluorine atoms.

Oxenrider in view of Tournut

The thrust of the Patent Office combination of Oxenrider with Tournut requires the proposition that Oxenrider does not rule out using an aqueous emulsion polymerization. The Patent Office cites column 1, line 50 to column 2, line 3 of Oxenrider in support of its assertion that Oxenrider does not rule out emulsion polymerization.

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The Applicants respectfully submit that Oxenrider is, in fact, directly ruling out the use of emulsion polymerization in this passage. The Patent Office cites this portion of Oxenrider as if it were part of the description provided therein. In fact, this passage is part of the background of Oxenrider, the admitted prior art over which Oxenrider seeks to distinguish itself. By setting up its claimed suspension polymerization process vis à vis the emulsion polymerization of the prior art, Oxenrider is indeed drawing a distinction between its process and other methods of polymerization. Not only is Oxenrider ruling out emulsion polymerization, it is pointing to emulsion polymerization as an important distinction between its claimed suspension polymerization and the prior art.

The Applicants also reiterate here their traversal of the use of Tournut as a reference against the present claims. The overall teaching of Tournut is squarely away from emulsifier-free polymerization and therefore it cannot be said to be properly available as a reference against the present claims.

The Applicants respectfully submit that the combination of Oxenrider with Tournut does not fairly teach, suggest or describe the process described in amended claim 1. The Patent Office has not shown any teaching in either Oxenrider or Tournut regarding the use of a fluorinated liquid having a boiling point of at least 50°C. Furthermore, the Patent Office has not shown any teaching in either Oxenrider or Tournut regarding a process for making a copolymer wherein the copolymer contains recurring units deriving from said hydrocarbon olefin in an amount of 10 to 70 mol% relative to the total amount of recurring units in said copolymer.

Withdrawal of the rejection of claim 1 is respectfully requested. Additionally, the remaining claims 2-13 all depend, either directly or indirectly, from claim 1. Thus, each of these claims is patentable at least on the basis of this dependency from a patentable base claim. Furthermore, amended claim 4 requires that the fluorinated liquid is an inert fluorinated hydrocarbon wherein all of the hydrogen atoms have been replaced with fluorine atoms. Even if the Patent Office were to maintain the inappropriate combination of Tournut and Oxenrider, the Patent Office has not shown that the asserted liquid fluorinated hydrocarbons described in Tournut are inert fluorinated hydrocarbons wherein all of the hydrogen atoms have been replaced with fluorine atoms.

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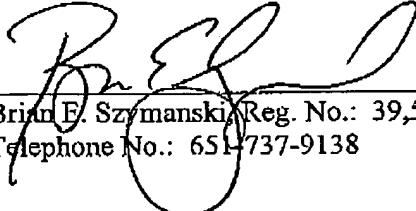
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CONCLUSION

In view of the foregoing remarks, favorable reconsideration of the present application and the passing of this case to issue with all claims allowed is courteously solicited. Should the Examiner wish to discuss any aspect of this application, applicants' attorney suggests a telephone interview in order to expedite the prosecution of the application.

Respectfully submitted,

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Date

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